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Using Service-Learning to Improve Attitudes and Behaviors Towards Recycling in a Secondary School

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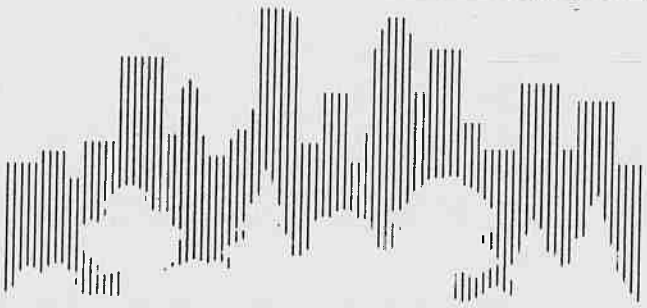

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MASTER OF ARTS IN EDUCATION

Sharriah B. Armstrong

Using Service-Learning to Improve Attitudes and Behaviors Towards Recycling in a Secondary School

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USING SERVICE-LEARNING TO IMPROVE ATTITUDES AND BEHAVIORS TOWARDS RECYCLING IN A SECONDARY SCHOOL

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CERTIFICATE OF APPROVAL

This is to certify that the Leadership Application Project of

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Has been approved by the Review Committee, and fulfills the requirements for the Master of Arts in Education degree.

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For my son, Cooper, who fills my life with joy, laughter, and awesome dance moves. And for his baby sister, Charlotte, whose soulful smiles make the sleepless nights and delirium worthwhile.

For my husband, Jim, whose efforts to protect the earth have inspired me, whose level-headedness has balanced me, and whose love and devotion have forever changed me.

For my parents who sacrificed to make quality education a priority.

ACKNOWLEDGMENTS

I would like to thank the students and staff at Crosswinds Arts and Science School for their commitment to improving recycling efforts, with an extra special pat on the back to Anna Barker, Alicia Mena, and Kevin McCalib for taking the reins and keeping the Eco-Crusaders and the recycling program going. I would also like to thank the principal, Anne Andersen, and the custodial engineering team for their cooperation and patience that helped to make my vision a reality. My deepest gratitude to my editors who challenged me to write a higher quality paper and to my husband who put in extra hours of independent child rearing so I could have time to work on my research.

ABSTRACT

USING SERVICE-LEARNING TO IMPROVE ATTITUDES AND BEHAVIORS TOWARDS RECYCLING IN A SECONDARY SCHOOL

SHARRIAH ARMSTRONG

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Leadership Application Project (EDC 585)

Abstract: Can middle schoolers'attitudes and behaviors towards recycling and waste reduction be improved through service-learning? This project was designed to help Crosswinds Middle School realize the school's mission to help students become environmental stewards through a two-week course titled "Eco Crusaders." During the course, students in grades six to ten were challenged to collaborate and create service learning projects that improve the school's recycling program. Students launched a successful school-wide campaign designed to "make recycling cool." Outcomes were measured by the use of surveys taken at the beginning of the course and repeated at its completion, along with service-learning reflections. Project outcomes included the implementation of a student-led recycling collection, student-made recycling centers in every classroom, and data to support a positive change in attitudes and behaviors towards recycling.

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Chapter One:

Introduction

Miles is one of my seventh grade Language Arts students. He wears sandals to class year-round and is one of the only boys in school who wears his hair long and unrestrained. Miles is predictable in that he comes to every class with a liter jug of water in one hand and a shoebox of random knickknacks and writing accouterments in the other. As he makes his way to his assigned desk, he habitually checks the garbage and recycling bin to ensure nothing has been placed inside incorrectly. Admittedly, Miles is one of my favorites.

Last term he wrote a paper about his hero: his college aged sister who composts in her small one room apartment and works as an advocate for *Greenpeace*. He also wrote about how his parents taught both him and his sister to respect the environment from a young age and that their home was "green" before it was "trendy."

Some children are born into families who value caring for the environment. These families make waste reduction practices such as composting, recycling, and reusing part of their daily routine. As a result, these children will most likely continue these earth-friendly practices into their adult lives. So what happens to the children who aren't born into such families? Where will they learn to become environmentally-responsible adults?

This Leadership Application Project is an effort to find an answer to this question. More specifically, *can attitudes and behaviors towards recycling and waste reduction be improved in a group of middle school students through environmental education and service-learning?*

Project Relevance

As an environmentally-conscious educator, I naively assumed that secondary schools with a science focus would automatically educate students about the impact humans have on the environment, as well as, about the issues society faces now and will continue to face in the future

regarding sustainability. When I began working at Crosswinds I was surprised to hear that there was little classroom instruction geared towards sustainability and I was equally surprised to see little evidence in the school's environment that suggested an environmental focus. After speaking with others regarding this subject, I realized I was not alone. Many of my friends, former colleagues, and colleagues at Crosswinds were surprised to learn that a science focus does not necessarily translate into a school that emphasizes programs such as recycling, waste reduction, and education for sustainability. In the initial weeks working at Crosswinds, I became interested in helping to increase environmental awareness by improving attitudes and behaviors towards recycling.

The staff and administration were open and supportive to the idea of improving the recycling program through environmental education but many were skeptical about finding the time. Some teachers worried that there wasn't time to teach the curriculum in their already over-loaded schedules and the custodians felt that a change in the recycling process would inevitably cause more work for them. To address both concerns, I knew the project had to require little effort for both the classroom teachers and the custodial staff in order to gain their support, so I decided to design an intersession course (a two week interim course between quarters) that combined environmental education and project-based learning with a service learning component.

Project Overview

The project was conducted during a two week intersession course titled "Eco Crusaders" designed to boost environmental literacy among students in grades six to ten and extended into the regular school year as a club. The Eco-Crusader club is still active nearly three years after its inception. The goal of the course was to spark student interest in creating service-learning projects that would increase recycling and waste reduction practices throughout the building and,

in effect, improve attitudes and behaviors towards recycling. Using a project-based learning approach, thirty-one secondary students from grades 6-10, launched a school-wide campaign to "make recycling cool." They proceeded to form small service-learning groups and to choose small group projects that would contribute to this goal. The largest initiative was to begin student-led recycling and to build recycling centers in each classroom. The centers were modeled after those in other local schools that already used student-led recycling and were intended to make recycling more visible, to educate by making signs promoting the proper use of recycling bins, and to give students a sense of ownership over the recycling process. In addition to the recycling centers, students also participated in the following major projects: 1) they created an ad campaign to adorn the walls with positive recycling messages; 2) they filmed an informative "Eco-Crusaders" music video; and 3) they prepared a multi-media presentation for the rest of the school in an effort to unite and inform students and staff of the new waste reduction initiatives.

The two week Eco-Crusaders course was successful according to the surveys, reflections, and student-staff feedback used as qualitative measures. The measures suggested that the project not only succeeded in improving the attitudes and behaviors of students involved in the Eco-Crusaders course, but that it also had the welcomed effect of improving the attitudes and behaviors of others throughout the school building.

Definition of Terms

1) *Environmental Literacy*- This phrase commonly means the knowledge gained by individuals about the natural world that surrounds them or as Professor of Environmental Studies David Orr defines it, it is the "knowledge necessary to comprehend interrelatedness and an attitude of care or stewardship" (Disinger, 2001, p. 7).

2) *Education for Sustainability*- According to *The English National Curriculum,* "Education for sustainability enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now, without damaging the planet for the future" (1999). Other terms used to describe this philosophy are 'education for sustainable development,' 'learning (or education) for sustainability' or simply 'environmental education.' In the UK, the Department for Children, Schools and Families uses the term "sustainable schools" defined as: "...places of teaching and learning. Schools must help pupils understand the impact we have on the planet...As models of good practice, schools must be places where sustainable living and working is demonstrated to young people and the local community" (Department for Education, 2010).

3) *Project-Based Learning*- Project based learning is "an instructional approach built upon authentic learning activities that engage student interest and motivation. These activities are designed to answer a question or solve a problem and generally reflect the types of learning and work people do in the everyday world outside the classroom" (Project Based Learning, 2010).

4) *Service-Learning*- "Service-learning combines meaningful service in the community with a formal educational curriculum and structured time for participants to reflect on their service experience" (Furco & Billig, 2002, p. 203).

Project Background

I learned quickly that students like Miles were not the norm at Crosswinds. During the first week of school, I noticed a large amount of garbage and recyclables thrown on the school grounds during recess. The incidences of littering were also pervasive on the floor in the

lunchroom and hallways. The first time I approached a student and asked if he could please pick-up his garbage, he scoffed at me and remarked, "No offense, but I thought you looked like one of those tree-hugger types." I didn't know it then but this was one of the students I would later become close with and he would help to lead the Eco-Crusaders project.

The school had recycling bins but students and staff misused them: the bins were used inconsistently and often incorrectly. The small blue recycling bins were often bypassed on the way to the much larger trash cans. I spoke with both students and staff who reported being unsure of what could be recycled in the comingled bins and admitted using the trash as an alternative. It was also surprising to see the large amount of plastic used for food and beverage service in the lunchroom and to note how underused and inconspicuously small the recycling bin was in the lunchroom.

In those initial weeks at Crosswinds I became increasingly curious about the general attitude towards litter, trash, and recycling. When asked, a veteran teacher admitted that recycling was not really important to him and in his opinion it was a "moral" judgment call and not a policy enforceable by the faculty. These experiences left me wondering how effectively we as educators were enacting the school's mission of helping students become environmental stewards. It was obvious that the student body was not respecting the school grounds and it was also clear that there were no current initiatives to promote waste reduction.

At the project's inception, the administration and staff were already open to bettering the environmental practices throughout the building. During my initial project inquiries with administration, I learned they had already instituted several positive initiatives to reduce environmental waste throughout the building. Early in 2008, the school began piloting a program to reduce energy lost through excessive lighting and heating. The school also signed a contract with Waste Management for comingled and single stream recycling of paper, aluminum,

glass, and plastic. Crosswinds also had a large sanitizing dishwasher in the school's kitchen that allowed for daily breakfast and lunch service on reusable trays.

Location and Student Population

Crosswinds East Metro Arts and Science School is a voluntary desegregation program for students in grades six through ten and is part of the East Metro Integration District 6067. As a desegregation program, Crosswinds welcomes students from both urban and suburban neighborhoods. Crosswinds is a year-round magnet school that integrates arts and science into all subject areas. It is an open enrollment school for students from Saint Paul Public Schools and nine surrounding suburban districts. Crosswinds is located on 34 acres in Woodbury, Minnesota. The school's acreage provides access to wetlands, prairielands, two ponds and Battle Creek Lake (Crosswinds East Metro, 2010).

Core Beliefs of the Author

Education for Sustainability, which includes teaching students to be conscious of what they use and throw away, is needed in American public education now more than ever to show young people how the world is interconnected and to teach them ways to advocate for the environment that sustains us. Our national media and the current Federal administration have publicly drawn attention to environmental challenges such as climate change, pollution, and the depletion of our natural resources. The current attention on the benefits of living "green" have the public seeking advice on how to make the right lifestyle choices. It is my personal goal as an educator to take full advantage of this opportunity to bring a highly ignored environmental focus into American schools.

Even the youngest students can understand the need to keep our environment clean and can grasp the fact that irresponsible waste management has negative consequences for other humans, plants, and animals. This means that we need to start educating ourselves and the

public to be responsible with the waste we create. In this Leadership Application Project, I suggest that we do this through the four R's: reduce, reuse, recycle, and eventually, rot!

Target Audiences

As young people become more educated and aware of environmental issues, their enthusiasm, creativity, and determination will encourage them to make environmentally responsible decisions for the future and will empower them to influence the adults in their lives. Therefore, the targeted audience of this paper is the educator and youth leader who works with and influences youth on a daily basis.

Of course, there are some schools that have done their homework and have already integrated environmental education into their school's curriculum. However, these schools are few and it is simply not enough. It is time to expand our audiences, make new commitments to reach underserved populations, and strive for a universal standard in environmental education throughout American schools.

While I believe that the fate of the planet is in our hands and the threat we pose to our environment is real, I did not propose to burden students with an outlook of gloom and doom. Instead, I piloted a program that models waste reduction in a positive and supportive environment. As educators, we can develop the skills to lead by example and to inspire the creativity needed to minimize and reverse negative human impacts on the environment.

Education for sustainability and service-learning opportunities in schools today will help to ensure responsible environmental decisions tomorrow. Service learning for students may be the key to integrating education for sustainability into our schools without taking time away from already overburdened teachers, administrators, and building maintenance staff.

Intended Use

This leadership application project was intended to help a group of middle school students who would like to become more environmentally literate but do not have the prior knowledge or experience to improve their own attitudes and behaviors. In addition, the project helped Crosswinds realize the school's mission to create a "community where each student's special talents and needs are recognized as he/she becomes a responsible citizen and an *environmental steward"* (Crosswinds East Metro, 2010).

Through the execution of this project and writing of this capstone paper, I hope to demonstrate how providing positive leadership for students interested in using service-learning opportunities combined with environmental education can help students become environmental stewards and can empower students to lead projects of their own. Through a collection of qualitative data, I gained a better understanding of the project's effect on the attitudes and behaviors of my students.

Guiding Question

Will a project-based course with environmental curriculum and service-learning improve the attitudes and behaviors towards recycling in a group of secondary school students?

Chapter Two:

Literature Review

While there is ample literature to support the benefits of service-learning and the benefits of recycling, the literature linking service-learning to waste reduction efforts are scarce. This paper will contribute to filling the void in the literature and help people to better understand the important role service-learning can play in helping students to improve attitudes and behaviors towards waste reduction.

Environmental Literacy and Education for Sustainability

Defining the term "environmental education" is difficult because it is used to describe countless areas relating to the environment, such as conservation, permaculture, and eco-tourism. It is through the learning culmination of these areas and more that one becomes "environmentally literate" (Disinger, 2001, p. 7). United States President Richard Nixon in a message to congress originally coined the term "environmentally literate" in 1970 (Disinger, 2001, p. 8). In much the same way, the term "education for sustainability" has also been used as an umbrella term when talking about ways to educate people about environmental impact. For the purposes of this research project, education for sustainability is the necessary component needed to develop a citizenry that is environmentally literate and therefore prepared to handle the environmental challenges ahead.

Brief History of Education for Sustainability

The "National Forum on Partnerships Supporting Education about the Environment" was a group of individuals from business and government, the educational community, and nongovernmental organizations (NGOs) who met in October of 1994 with the goal of developing "a common and compelling vision: to broaden our concept of education to include sustainable development. They came together to share common themes, ideas, and challenges related to

education for sustainability" (Education for Sustainability, 1994). This led to a long process of compiling ideas from hundreds of participants from around the world and the end result was a document titled *Education for Sustainability: An Agenda for Action.* According to this well-known document, education for sustainability is defined as "a lifelong learning process that leads to an informed and involved citizenry having the creative problem-solving skills, scientific and social literacy, and commitment to engage in responsible individual and cooperative actions. These actions will help ensure an environmentally sound and economically prosperous future" (Education for Sustainability, 1994). This document also chronicles many of the major efforts made in the last century towards education for sustainability, including the importance of educators in this process.

The role of educators in the history of education for sustainability is of particular importance in *An Agenda for Action,* which credits educators for paving the way towards the current global efforts in environmental action. It states "if sustainability is to be achieved, educators should take a leadership role, breaking new ground to prepare society for an age of accelerating change in a world of increasingly diverse and growing populations, an expanding economy, and changing global environment" (Education for Sustainability, 1994). Highlighted in the document is a historical leader in education and the environment, Dr. Bill Stapp, who is credited with playing a pivotal role in the development and maintenance of education for sustainability.

Stapp's name is associated with a group of students from the University of Michigan credited with coining the first formal definition of the term "*environmental education.*" Stapp wrote, "Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution" (Stapp, 1969). Stapp is also

honorably mentioned as a participant and organizer of key conferences throughout the 1970s during his time as the first director of environmental education for the U.N. Educational, Scientific, and Cultural Organization (UNESCO). Dr. Stapp also founded the Global Rivers Environmental Education Network (GREEN), linking environmental learners in 140 nations (Education for Sustainability, 1994).

Stapp and countless other environmental educators have helped this country become aware of our impact on the environment. "Today, more Americans than ever before understand that to ensure a good quality of life for ourselves and our children, we must act as responsible stewards of our air, our water, and our land" (Browner, 1995). According to Carol Browner, the Administrator of the EPA, the key to continuing this environmental movement is to get citizens involved to do their part in protecting the environment: "Americans in business and communities throughout this country must be full and active participants in solving environmental problems" (1995). In support of this type of mentality, Browner helped to establish the National Environmental Act of 1990, which "charged the EPA with the responsibility for coordinating federal environmental education initiatives" including a goal to "educate youth to protect the environment" (1995).

Brief History of Service Learning in the United States

The United States has a long history of valuing service-learning. In a famous nineteenth century study of American society, author de Tocqueville (1961) wrote about Americans' habit of forming voluntary associations to advance their own and their communities' interests. De Tocqueville suggested that such associations were crucial to the vitality of American society, pointing out that their activities served to shape the participants' recognition of the coincidence of personal and public interest, which he called "the principle of interest rightly understood" (p. 43).

The 20th century saw the creation of many federally funded organizations that sought to make the United States a better place through community service organizing. In the 1930's, the Civilian Conservation Corps was developed as part of the New Deal efforts to improve the quality of the environment and later the Peace Corps and Vista programs sought to benefit communities throughout the United States (Furco & Billig 2002). In 1989, the Charlottesville Summit of the President and the Governors led to a set of National Education Goals, including a goal focusing on citizenship in public schools that stated, "All students will be involved in activities that promote and demonstrate good citizenship, community service, and personal responsibility" (U.S. Department of Education, 1990).

Service-learning today has grown far beyond externally-funded federal programs and has become popular within our public school system. It is clear that service-learning is valued by the majority in American education according to a national survey that reported a large majority of both private and public schools claim "at least some of their students [participate] in community-service or service-learning" (Genzer, 1998; Skinner & Chapman, 1999). The same study reported that in schools that promoted community-service or service-learning, the participation rate grew as students became older. The reported high school participation rate was 83% compared to the elementary rate of 55%. At Crosswinds, service-learning is a requirement as part of the International Baccalaureate Middle Years Program.

Service-Learning Theory and its Essential Components

Service-learning has become an important part of educating young people to be active and responsible citizens in the world beyond the classroom. According to the authors of *Community Service: A Guide to Including Service in the Public School Curriculum*, service-learning has grown at a rapid rate in the nation's schools "in response to the growing social and environmental problems in the communities of the United States" and in addition, "national

recognition has been given to the tremendous potential for both youth and educational reform" (Wade, 1997).

In recent years there has been much debate on what sets service-learning apart from community service (Furco & Billig, 2002, p.7). In an effort to set defined boundaries between the two, the Alliance for Service-Learning in Education Reform (ASLER) has defined service-learning as follows:

> Service-Learning is a method by which young people learn and develop through active participation in thoughtfully-organized service experiences: that meet actual community needs, that are coordinated in collaboration with the school and community, that are integrated into each young person's academic curriculum, that provide structured time for a young person to think, talk, and write about what he/she did and saw during the actual service activity, that provide young people with opportunities to use newly acquired academic skills and knowledge in real life situations in their own communities, that enhance what is taught in the school by extending student learning beyond the classroom, and that help foster the development of a sense of caring for others. (ASLER, 1993, p.1)

According to both ASLER and the National and Community Service Act of 1990, the "components of curriculum integration and reflection are what distinguishes service-learning from community service" (Wade, 1997, p. 20).

Service-learning can vary immensely from initiative to initiative, but what are common among these efforts are the main components to a successful service-learning experience. ASLER (1993) compiled a list of six "essential components of quality service-learning," which have been echoed in other key texts used in this research paper including *Service-Learning: The Essence of the Pedagogy* (Furco & Billig, 2001). These six essential components are outlined below with an abbreviated definition from the original text.

1) Preparation: involves careful planning by all those involved in the program, the construction of a time line for the project, a list of responsibilities and outcomes, and details on who will complete which tasks
2) Collaboration: involves school district personnel, students, and community members working together to develop a program that is appropriate, flexible, and in the best interest of all the participants
3) Service: engages young people in responsible and challenging actions for the common good
4) Curriculum Integration: integrates service with the academic curriculum
5) Reflection: provides structured opportunities for students to reflect critically on the service experience
6) Celebration: recognized by others in the school and community as an important means for renewing student competence

Reduce, Reuse, and Recycle

The United States Environmental Protection Agency (EPA) has named the three "R's" as key areas for responsibly managing our consumer waste: reduce, reuse, and recycle. First, the EPA recommends reducing the amount of waste we produce by buying products with less packaging and toxicity. Second, the agency recommends reusing or repurposing items before putting them into the garbage or recycling. Third, the EPA recommend recycling all recyclable aluminum, glass, paper, and plastic, as well as buying products made from post-consumer materials (Municipal Solid Waste, 2010).

Inform Incorporated, an environmental organization, compiled a list called the Community Waste Prevention Toolkit that offers a good guideline for what people can do within organizations to reduce and reuse responsibly (INFORM, 2010).

1. Reduce paper use.
2. Purchase durable goods.
3. Lease and rent when appropriate.
4. Specify product and packaging take-back.
5. Buy goods in bulk or concentrated form.
6. Manage surplus effectively.
7. Establish food and yard waste reduction programs.
8. Purchase recyclable items and items with recycled content.
9. Procure remanufactured goods and use refurbishing services.
10. Purchase goods containing fewer toxic constituents.

In recent years, there has been a fourth "R," rot, added to this hierarchy of waste reduction. Rot is a way to reduce the amount of food and other organic materials that would normally go to landfills by turning them into compost and reusable soil (Rahmani, 1999).

Recycling as Environmental Stewardship

If one is to learn to be an environmental steward, learning to recycle is of primary importance. It is perhaps the simplest form of taking care of the earth. The importance of recycling is something many of us learn as children in our homes. Like my student Miles, I was raised in a home that valued waste reduction and caring for the earth. My father taught us how to use the recycling bins and scolded us when he found recyclables in the garbage. He was careful to explain why recycling was an important part of caring for the earth and future generations and led by example. However, there are plenty of households that do not recycle and many children who come to school without prior education and experience with recycling. That is why it is so important for schools to make recycling and modeling of recycling practices a priority.

Chapter Three:

Methodology and Data Collection

I used action research for the framework of my Leadership Application Project and qualitative measures to look at its effectiveness. Action research "is a systematic inquiry done by teachers to gather information about how they teach and their students learn" (Mills, 2007, p. 5). Action research is most often measured with qualitative methodology, which utilizes both narrative and descriptive approaches to data collection to understand the way things are and what conclusions can be drawn from them (Mills, 2007).

Outcomes were measured using a combination of surveys, reflections, and student-staff feedback. First, student attitudes and behaviors were pre-assessed using surveys the class members took at the beginning of the course and were re-assessed at the time of course completion. In addition, students completed a reflection questionnaire at the end of the two week course. The project's effects on the larger school community were measured informally based on teacher, staff, and student comments and feedback as well as the over-all use of the recycling centers.

Project Inception

In the fall of 2008 I began working at Crosswinds as an Education Assistant. When I researched possible schools for employment, I chose Crosswinds because its mission statement read like a duplicate of my personal education philosophy. Because I am a passionate advocate for helping students "become responsible citizen[s] and environmental steward[s]," as stated in the school's mission statement, I was thrilled to be hired at a school that shared my passion for helping students and the environment (Crosswinds East Metro, 2010). In my research of area schools, I found that Crosswinds was one of the few Minnesota schools that incorporated an environmental focus in its mission.

I began the year expecting to see sustainable practices throughout the building, but what I experienced was similar to what I had seen in many other secondary schools without an environmental focus. The school was not focused on education for sustainability and this was apparent in the lack of an advanced recycling program and in the attitudes and behaviors of some students and staff towards waste reduction.

Forming the Eco Crusaders

I knew from day one that I wanted to help Crosswinds improve its efforts to model environmental stewardship but I was unsure how to go about it. During my lunch supervisions, I noticed two girls who consistently hand separated recyclables from the trash can. When I asked them about their daily ritual, one student told me they do it because "it's important to care for the earth" while the other commented "these kids need to learn how to use the recycling bin." I was touched by their efforts and I told the students they had my full support. After I thought about it, it occurred to me that these students had already started to promote the kind of change I wanted to lead. They were leading by example and showing their peers how to be environmental stewards.

After doing some initial research on what other Minnesota schools were doing to reduce waste, I approached these students and asked if they would be interested in being part of a student-led group that would work to forward their previous stated goals: to create awareness about caring for the earth by teaching the Crosswinds community to reduce waste. Not only were they enthusiastic about the idea, they also wanted to get started right away.

Service Learning Theory in Action

The two week course, Eco-Crusaders, was designed using the service-learning model as described in the guiding text: *Service-Learning: The Essence of the Pedagogy* (see earlier

discussion of this model on page 21). The following subsections show how the course was organized in relation to the "six essential components" outlined in the guiding text.

Preparation

In preparation for the course, I submitted a proposal to teach a course titled "Eco-Crusaders" with the enrichment coordinator at Crosswinds. Once the course gained approval, I began working with the students I had approached in the cafeteria to recruit others who might be interested. I asked the girls to see if any of their friends were interested in an environmental group and if they would be willing to meet during intersession. While they gathered signatures from their friends, I circulated around the cafeteria with a clipboard and gathered signatures of all the high school students who said they were interested in making Crosswinds a more environmentally-friendly school. We then pooled our lists and invited the 23 interested high school students to the first Eco-Crusader meeting.

Collaboration

The first meeting was held during homeroom and was dedicated to generating ideas for a service learning project that would help Crosswinds to better meet the school's mission statement of helping students to become better environmental stewards. I introduced what other local schools were doing and the group voted to follow a model from the school where my husband teaches and designed recycling centers with his students. Students used pictures of the model recycling centers to brainstorm a design for new and improved recycling centers (see Appendix A) and created a blueprint with the measurements needed to build the centers (see Appendix B). They also created signs in both English and Spanish showing the items for trash and recycling (see Appendix C).

Students were concerned that the custodians would throw the separated material into the garbage. They shared stories of seeing the custodians empty the paper recycling into the garbage

at the end of the day and were skeptical that comingled recycling would be handled differently. As a solution they decided it would be best if they collected the material themselves and made sure it went to the appropriate recycling dumpster. At our next morning meeting, students began to research other programs that had student-led recycling programs and found a program at Como Park High School that they wanted to mirror. They contacted the program director and began planning the student led collection procedure.

Before proceeding any farther, we needed to gain the permission of the administration and custodial staff. The administration was extremely supportive of a project that would support the school's environmental focus while the custodial staff was convinced that it wouldn't work and would only create more work for them. After student attempts to reach an agreement with custodial staff had failed, I stepped in and experienced the same resistance. Eventually, with the support of the administration, the custodial staff agreed with the stipulation that they would not support the program if it involved additional work on their part.

Once we had the support of the administration, I wrote a grant proposal for the funds needed to buy the materials needed for the recycling centers and educational signage. We were approved for $360 of the Family Involvement Funds.

By the time our Eco-Crusader course began, the service project was basically planned but we needed to prepare the entire group during the initial days of the two week course. Since the class included students from the middle school who had not attended the initial meetings, the founding members of the group explained our objectives and gathered new ideas. We agreed that the main goals for our two week course were to design the recycling centers, build the recycling centers, and prepare to implement student-led recycling when regular classes resumed following intersession.

Service

The campaign to "make recycling cool" was launched the week we returned to the regular school calendar. Students hung their original promotional posters throughout the building and delivered the recycling centers to each classroom. Each center had a tag that read "This recycling center was hand-made by the Eco-Crusaders." The lunchroom had a new and much larger recycling bin, a bucket to collect bottle caps for recycling at Aveda, and educational signage hanging above the waste sorting area. Students were also scheduled to collect and empty the classroom recycling bins and supervise the lunchroom sorting area during student lunch periods. (Examples of student work can be found in Appendix D).

Every morning of that week we held grade level assemblies in the main auditorium where the Eco-Crusader students gave an informational presentation using the Power Point Presentation (see Appendix D) and videos they had made over intersession. They also gave a live demonstration about how to use the new recycling centers and about what common lunchroom items should be placed into comingled recycling.

The biggest challenge was communicating with homeroom teachers, teaching assistants, and the custodial staff to make sure recycling was collected by students in a timely manner. After giving the homeroom presentations and sending multiple staff e-mails, there was still confusion regarding who was responsible for emptying the centers. Since communication was sent primarily via a mass staff e-mail, messages were often over-looked. To avoid confusion, I began to attend team leader meetings to ensure the Eco-Crusader messages were received and the new procedures were followed throughout the building. After the initial two weeks of implementation, the collections were running smoothly.

Curriculum Integration

The majority of the curriculum was project-based learning. Since it was important that this effort be led by students and not the by the instructor, we brainstormed a list of things that needed to be done with the mantra of "making recycling cool" as our guiding principle. The students settled on eleven major projects and chose where they would like to concentrate their efforts:

1) Designing and building recycling centers
2) Designing and painting of recycling centers
3) Filming and editing an informational video promoting the use of recycling centers
4) Filming and editing a motivational music video to air during homeroom newscasts
5) Creating posters with original art and slogans to hang throughout the building
6) Creating educational posters for the lunchroom with real representations of which items are trash and which are recyclable
7) Creating color/ laminate /multi-lingual posters to hang on recycling centers showing which items are trash and which are recyclable
8) Distributing planning and delivering of classroom recycling bins
9) Creating a Power Point presentation about the recycling program to show to the entire school
10) Organizing a student led recycling collection plan
11) Improving lunchroom recycling visibility

By the time school resumed after intersession, all eleven project goals had been met by the students and they were ready to share their work with the rest of the school.

Reflection

Students at Crosswinds are required to complete a certain number of service-learning hours depending on their grade level. When students finish their hours they are required to complete service-learning reflection sheets that are signed by their supervisor (Appendix E). "All students are required to perform a total of 100 hours of community service upon completion of the International Baccalaureate Middle Years Program at Crosswinds. A Community Service Documentation Form must be completed and submitted to the IB Coordinator to receive credit for each volunteer experience" (Crosswinds East Metro, 2010).

Celebration

Participation in the Eco-Crusaders intersession course was voluntary for students and they did not receive credit for the course. As a result, they were not formally assessed. Instead, they were provided feedback and positive reinforcement for project effort and completion. The final day of the Eco-Crusaders course was celebrated with a party where everyone brought in treats to share and we delivered the centers to each classroom. Upon returning to the regular school schedule, there was also positive verbal recognition from the students and staff in the building and an article written in the newsletter (see Appendix F). At the subsequent Eco-Crusader meetings, I was also excited to share all of the positive e-mails I received from staff in the building.

Chapter 4:

Results & Discussion

To measure changes in attitudes and behaviors towards recycling, students completed pre-course and post-course surveys, as well as a reflection form. I found that most students taking the Eco-Crusaders course already had positive attitudes toward recycling; therefore, a significant change was not expected. However, some students reported that they had either improved their recycling behaviors or were trying to improve. Students also reported positive changes in their attitudes and behaviors in their post course reflections.

Service-Learning Reflections

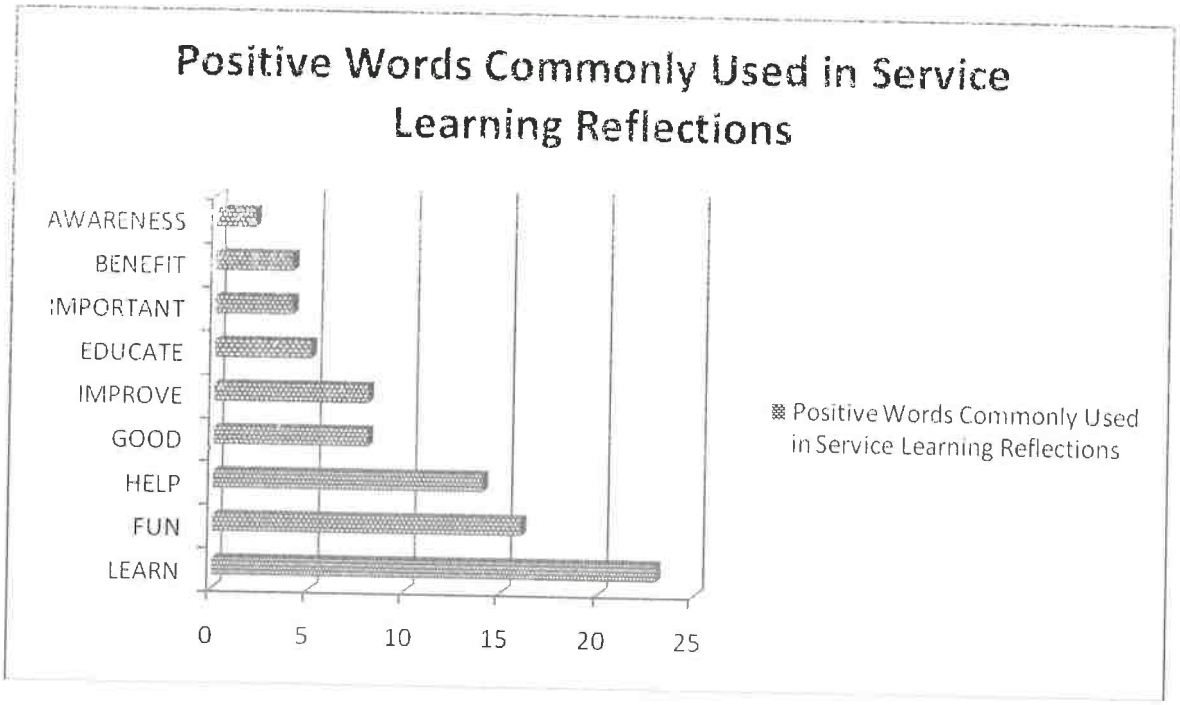
After the completion of the course, students were required to complete a Community Service Documentation Form in order to receive credit towards their community service hours (see Appendix E). The responses from all thirty-one research participants were positive and demonstrated that most students gained a greater appreciation and dedication towards recycling and waste reduction. Additionally, all participants took a pre- and post-course survey asking for feedback on how they were personally affected by the experience. In most cases, the combination of their service-learning responses and surveys clearly demonstrated a change in attitudes and behaviors.

A table 1 lists a couple of the questions from the reflection form and gives examples of student responses that signal a positive change in either attitude or behavior following the project.

What did you learn about others from this experience?	• "Some people don't care about the environment but there are more people who do." • "Now I know there are others who want to do something [for the environment]." • I learned that people may not know what I know [about recycling] and I should help to educate them." • "I didn't realize that recycling doesn't come naturally for some. Hopefully the centers will help more people recycle."
Describe how you benefited from this experience. How did it affect you? What did it make you think?	• "Now I know it's my responsibility to set a good example for others. I'm going green!" • "I saw the change from thought to being. I believe we can make a difference in the health of our planet." • "I care more about the environment now and want to not only help others but make where I live cleaner." • "It made me think that our school's recycling is outdated and I can do something about it."

Table 1. Examples of student responses to service-learning reflection questions indicating a positive change in attitude and/or behavior.

I also used word coding to find commonalities in the words students used to describe their experience (Figure 1). These commonalities in word choice also provide evidence to support a change in attitudes and behaviors. For example, out of the 31 reflection forms submitted by study participants, the word "fun" was used in 16 reflections and 23 reflections used the word "learn." This frequency signals a positive attitude toward our recycling efforts. Other common words include: "help," "good," "improve," "educate," "important," "benefit," and "awareness," all of which supported a positive response in attitudes and behaviors toward our waste reduction efforts.



* Suffixes were omitted in this table

Figure 1. Bar graph showing the positive words most commonly used in service-learning reflections.

Based on these commonly used words, it is clear that students not only used positive words to reflect on their experience, but they also had a common vocabulary to express their thoughts about their experience with the project. It is also important to note that all reflections were positive in nature and did not show any commonalities in negative word choice.

Pre-and Post-Course Surveys

Prior to the first day of the Eco-Crusaders intersession course, I created a ten question pre-course and post-course survey on www.surveymonkey.com (see Appendix G). Both surveys asked the thirty-one student participants to reflect on their current attitudes and behaviors towards recycling. More specifically, the pre-course survey asked students to rate their current attitudes and behaviors while the post-course survey asked students to report any changes in attitudes and behaviors after participating in the course.

As predicted earlier in this paper, some of the questions showed a substantial improvement in attitudes and intended behaviors towards recycling. For example, a majority of students responded "yes" to numbers four and five of the post-course surveys, indicating that they would "make an effort to recycle *more,*" both at home and at school after taking the Eco-Crusader course." As shown in Figure 2, 64% of students responded "yes" when asked "Now that you have taken Eco-Crusaders will you make an effort to recycle more at home?" and 71% of students responded "yes" when asked "Now that you have taken Eco-Crusaders will you make an effort to recycle more at school?"

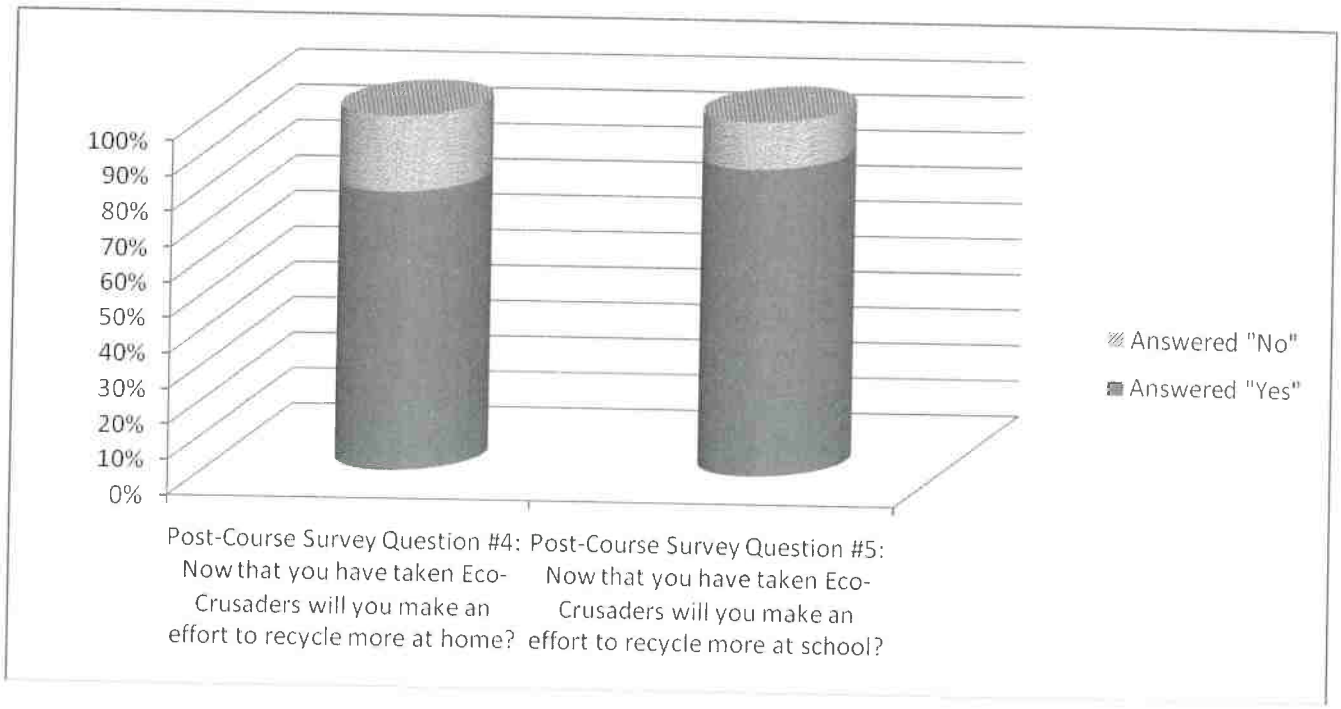


Figure 2. Bar graph of the post-survey results showing that students are willing to make a greater effort to recycle after taking the Eco-Crusaders course.

Additionally, in response to number three of the post course survey, 73% of students reported their attitude towards waste reduction became "more positive" after taking the course. This includes the student mentioned earlier in this paper who believed that recycling was for

"tree-hugger types." In his service-learning reflection, this student wrote ""Helping the environment is more fun than I thought it would be. Eco-Crusaders rule!"

When compared, questions nine of the pre and post-surveys showed an enthusiastic change in student's attitudes. When asked "Which statement below best describes how you feel Crosswinds is doing with recycling and waste reduction efforts?" in the pre-course survey, a majority of students responded either "very poorly" or "could be better." In contrast, when asked the same question on the post-survey a majority of students responded "satisfactory" or "excellent."

Finally, 100% of students who initially responded that they recycled only if "it's convenient" to question number two on the pre-course survey changed their response to a more positive response such as "it's important to me" or "I go out of my way to recycle." In fact, a student who initially wrote "I could care less" next to his pre-course response to the question wrote, "I learned that I'm not the only person who needs to recycle more and now I know how I can."

While there were several responses indicating a positive growth in attitudes and behaviors, some responses to the ten survey questions showed that students were equally supportive of recycling efforts before and after the course. This could be a function of the questions themselves being too vague or it could be that students were already supportive of recycling in the beginning of the course so their attitudes remained equally as positive from the beginning until the end. For example, number one of the pre-course survey may have been worded too vaguely as most people would not respond that they do not believe recycling is important.

In combination, both the service-learning reflections and the surveys made a powerful statement about the effectiveness of the project. These measurement tools showed that students

both enjoyed the experience and planned, if they had not already started, to change their attitudes and behaviors towards recycling and waste reduction.

If I had the opportunity to collect data again, I would be careful to make sure that the questions asked before and after the project were better suited to measure a change in attitudes and behavior. It is notable that the lack of substantial evidence to indicate change in some questions from the pre-survey to post-survey may be a function of the way the questions were written.

Chapter 5:

Discussion & Implications

At the inception of this project, I found myself with grandiose ideas of what I wanted this environmental journey to look like. I was most concerned with reaching the students who don't know how to recycle correctly at school and who may not recycle at home. Visions of a completely compostable waste program danced in my head. After researching further, I learned that beginning a composting program within a school has large up-front costs and it was extremely frustrating to find the support I needed to embark on such a lofty goal. My next impulse was to design a project that would improve the attitudes and behaviors of the entire student and staff population at Crosswinds. Finally, I settled on a combination of the two; I designed a project to improve the school's recycling program while attempting to improve the attitudes and behaviors of a group of students.

Guiding Question Answered

When I first began to explore the options for helping students to become "environmental stewards" as is stated in the school's mission statement, teachers and staff were supportive of my efforts but skeptical that our already demanding school schedule could accommodate the time needed for the improvements. I wanted to know if a project-based course with environmental curriculum and service-learning could improve the attitudes and behaviors of its participants without creating more work for classroom teachers and custodial staff. I found the answer to this question was to teach the Eco-Crusaders course during intersession as an elective so that it didn't interfere with teachers' already full schedules and to include service-learning to make it student-led and sustainable with little need for staff involvement.

Based on the measures discussed in the methods section, *the goal of the project was met.* All students responded positively to the course and used a common language to explain their

experience. This approach was so effective for my students that I highly recommend it to others who are interested in improving both their school's recycling program and student's attitudes and behaviors towards waste reduction.

Project Follow-up

Now, two years after the initial Eco-Crusaders course, the legacy continues at Crosswinds and other schools can use the program as a model for their waste reduction efforts. The recycling centers are still in use in all of the classrooms at Crosswinds and the Eco-Crusaders Club still meets regularly. Additionally, the Eco-Crusaders have expanded their program to include after-school clubs: one that continues green initiatives within the building and one that helps to run the community gardens outside the building.

Project as a Model

Just as the Eco-Crusaders based our project on the efforts of another school, I have since changed schools and am now looking at the student-led recycling model at Crosswinds to implement a similar program beginning in the 2011-2012 school year.

Ideas for Extended Study

If I had the project to do again, there are three additional components I would like to address. First, I would like students to complete reflections at the beginning of the class in addition to the reflections at the end of the Eco Crusaders class instead of collecting their reflections at the end. Then, at the end of the course I would ask students to reflect on their pre-class reflections and comment directly on any changes in their attitudes and behaviors. The direct comparison of the two reflections would strengthen the data supporting a significant change.

Also, having seen the positive impact of this project, I would like to know if a similar course design would transfer to areas other than waste reduction. For example, would a course

that uses service-learning and tolerance education improve students' attitudes and behaviors towards diversity?

Finally, it would be interesting to see how my instruction and prompting affected the project outcome. If there had been a different instructor, would the results have been different? If so, what are the characteristics of the instructor that make such a project successful?

Advice for Project Leaders

The key to successful environmental education curriculum is the emphasis on making sustainability projects enjoyable for students and providing students with choices and the opportunities to make the project their own (Venkataraman, 2008). Likewise, the key to success in this project was giving students the freedom to choose projects that they were personally interested in, providing a fun project environment where they could work and collaborate, and most importantly, developing personal relationships with my students.

References

Alliance for Service-Learning in Education Reform (1993). *Standards of quality for school based service-learning.*

Browner, C (1995). Why environmental education?. *EPA Journal*, Spring 1995, p. 6-8.

Department for Education (2010). Review of the national curriculum. *Crown*. Retrieved May 11, 2010, from http://www.dcsf.gov.uk

Crosswinds East Metro Arts & Science School. *East metro integration district 6067*. Retrieved May 11, 2010, from http://www.emid6067.net/crosswinds/index.html

de Tocqueville, A. (1961). *Democracy in America*. (2 vols.) New York: Schocken.

Disinger, J. (2001). *Environmental educations definitional problem*. Essential Readings in Environmental Education: Champangne: Stripes Publishing L.L.C.

Education for Sustainability (1994). *An agenda for action*. Retrieved September 23, 2010, from http://www.gcrio.org/edu/pcsd/index.htm

Furco, A. & Biilig, S. H. (2002). Service-learning: the essence of the pedagogy. *Advances in service-learning research*. Information Age Publishing, Inc.

Genzer, D. (1998). *Community service and service learning initiatives in independent schools.* Washington, DC: National Association of Independent Schools.

INFORM (n.d.). *Building environmental literacy.* Retrieved June 10, 2010, from http://www.informinc.org/cwp-05.php

Lyons Higgs, A., & McMillan, V. (2006). Teaching through modeling: four schools' experiences in sustainability education. *Journal of environmental education*, *38*(1), 39-53. Retrieved from Academic Search Premier database.

Mills, G. (2007). *Action research: A guide for the teacher researcher* (3rd Ed.). Columbus, OH: Pearson-Prentice Hall.

Municipal Solid Waste | Wastes | US EPA (n.d.). *US environmental protection agency*. Retrieved June 10, 2010, from http://www.epa.gov/msw/reduce.html

Project Based Learning (n.d.). *The online resource for PBL*. Retrieved June 10, 2010, from http://www.pbl-online.org

Rahamani, M., & Hodges, A. (1999, July). "Analyzing compost economics." BioCycle, 40 (7), 66. Retrieved October 12, 2007, from Academic Search Premier database.

Stapp, W. (1969, Fall). "The Concept of Environmental Education," *The journal of environmental education*, 1:1, p. 31.

Strife, S. (2010). "Reflecting on environmental education: Where is our place in the green movement?" *The journal of environmental education*, *41*(3), 179-191. doi:10.1080/00958960903295233.

U.S. Department of Education. (1990). *National goals for education survey*. Washington, DC: Author.

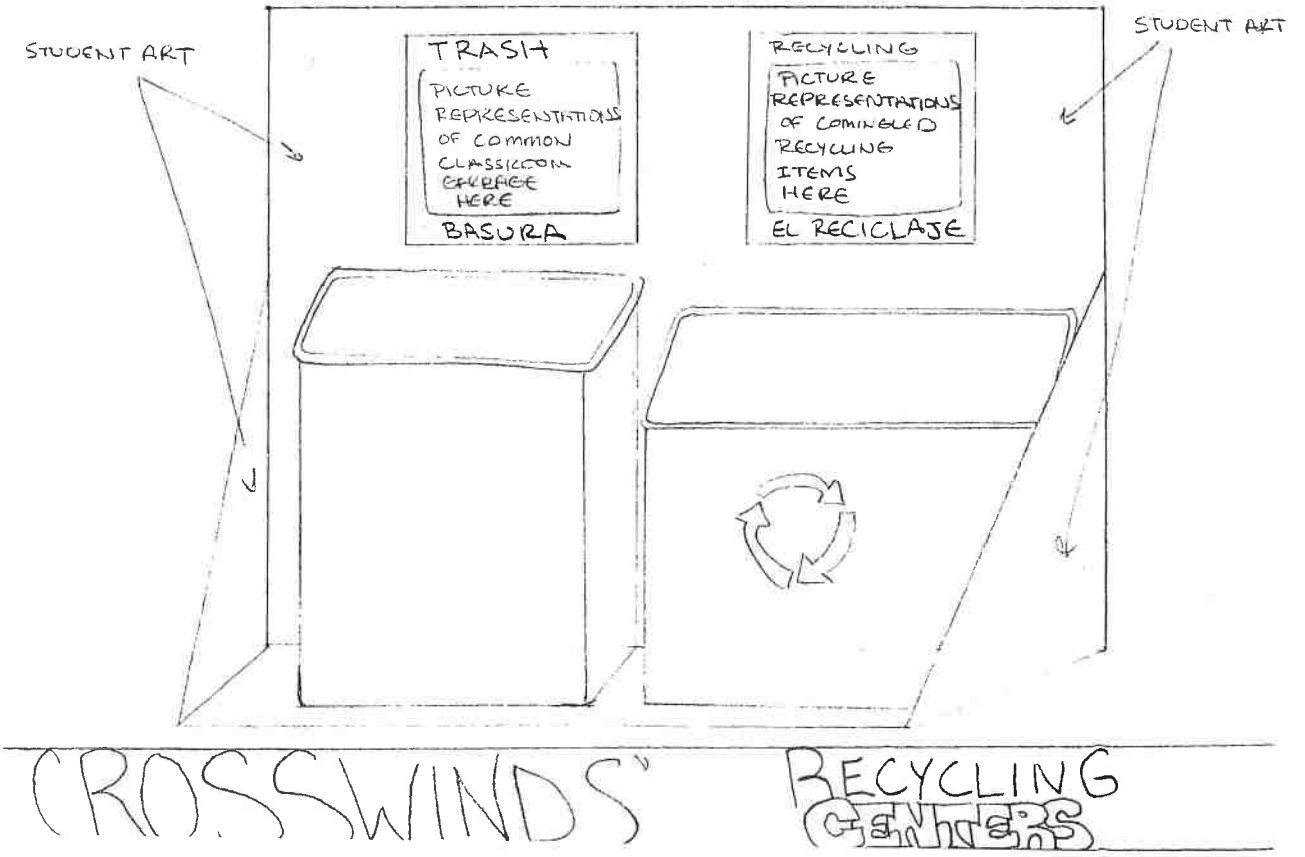
Venkataraman, B. (2008). "Why environmental education?" *Environment*, *50*(5), 8-11. Retrieved from Academic Search Premier database.

Wade, R. (1997). *Community service-learning: a guide to including service in the public school curriculum*. Albany, NY: State University of New York Press.

Whitehouse, H. (2004). The challenge of valuing ecological sustainability in schools. *Primary & Middle Years Educator*, 2(2), 14-19. Retrieved from Academic Search Premier database.

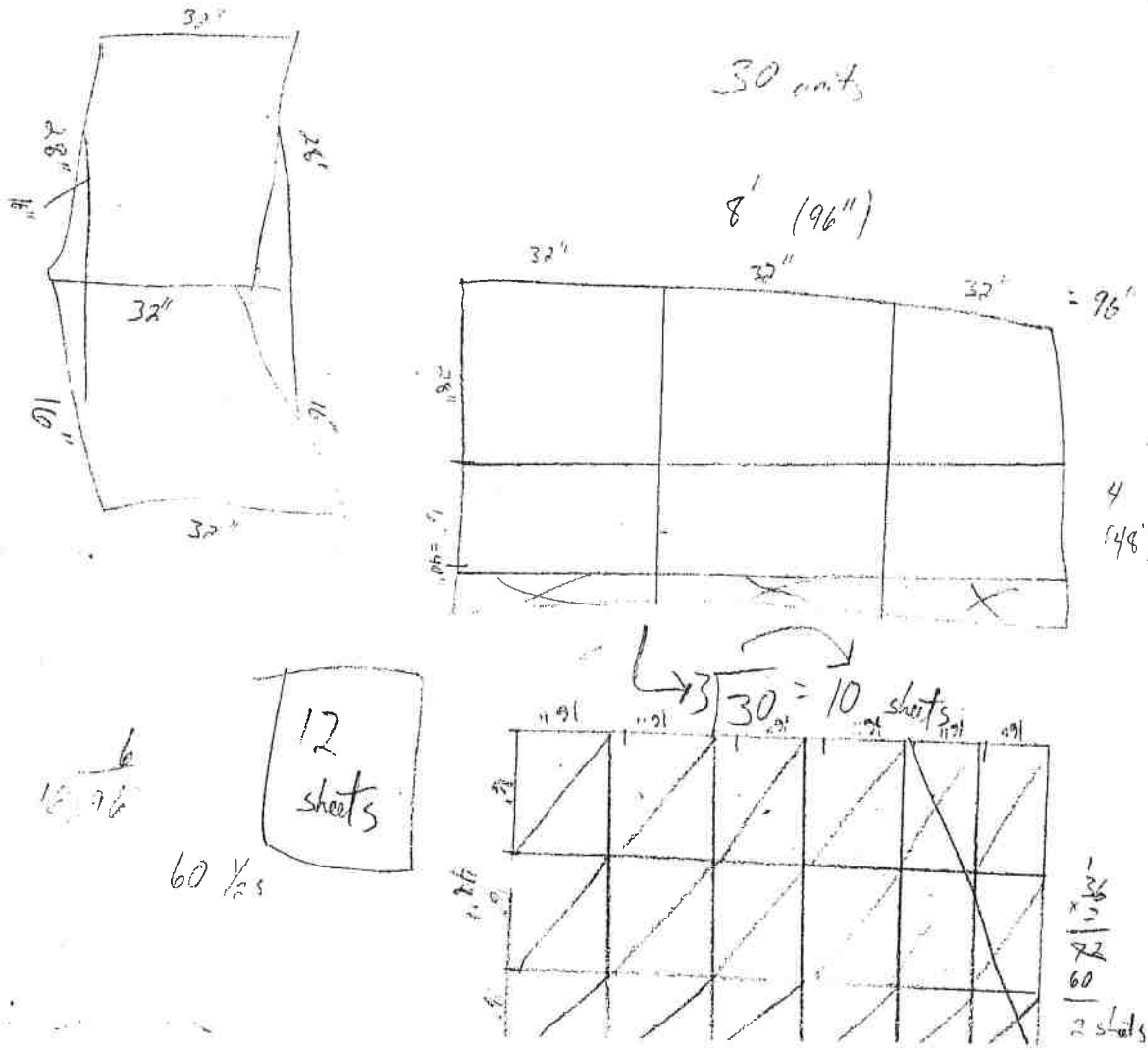
Appendix A

Student Generated Recycling Center Design



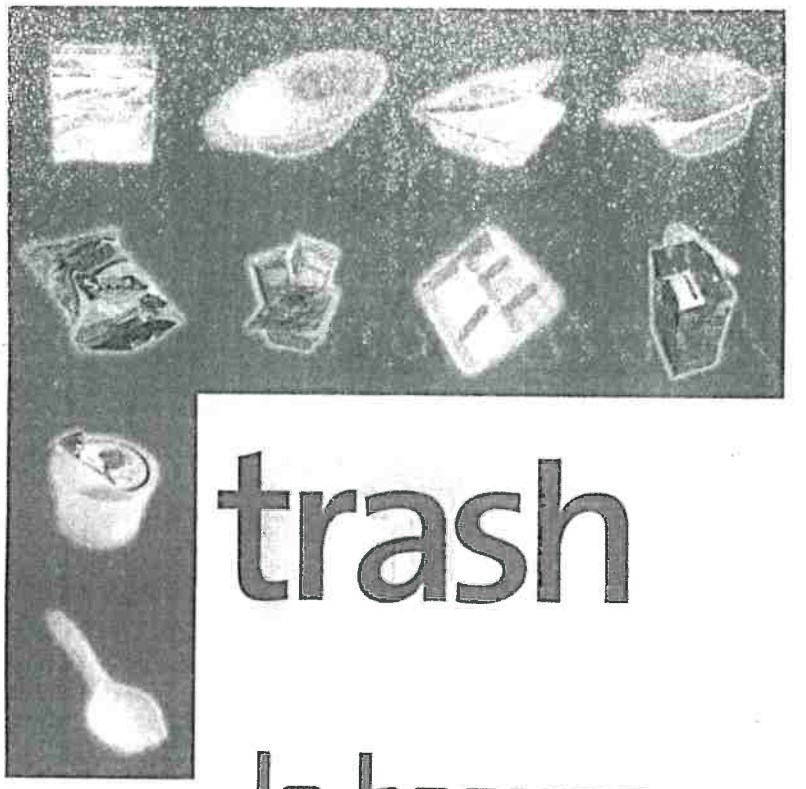
Appendix B

Student Generated Recycling Center Blueprint



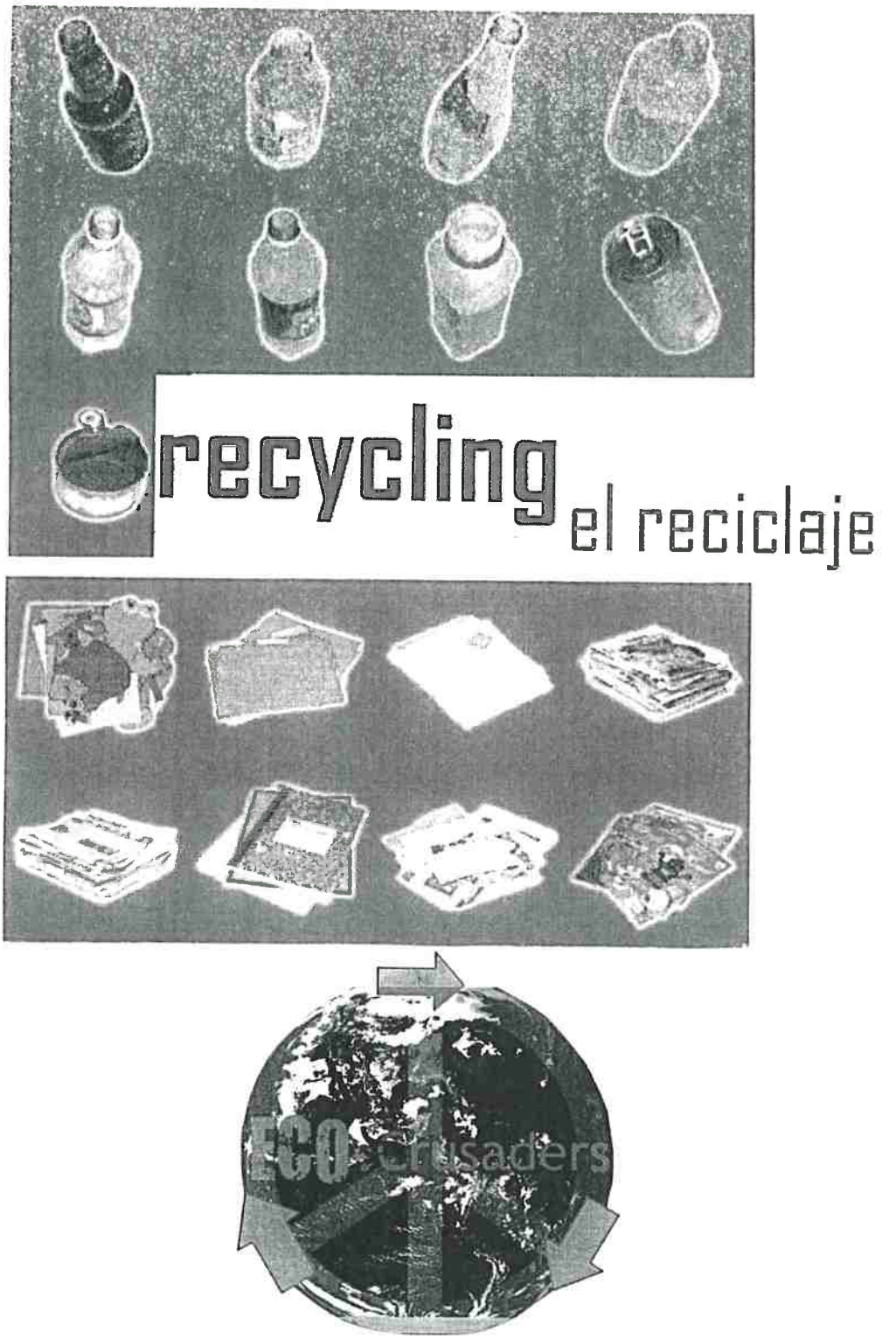
Appendix C

Bilingual Signage for Recycling Centers



Appendix C: Continued

Bilingual Signage for Recycling Centers



Appendix D

Examples of Student Work

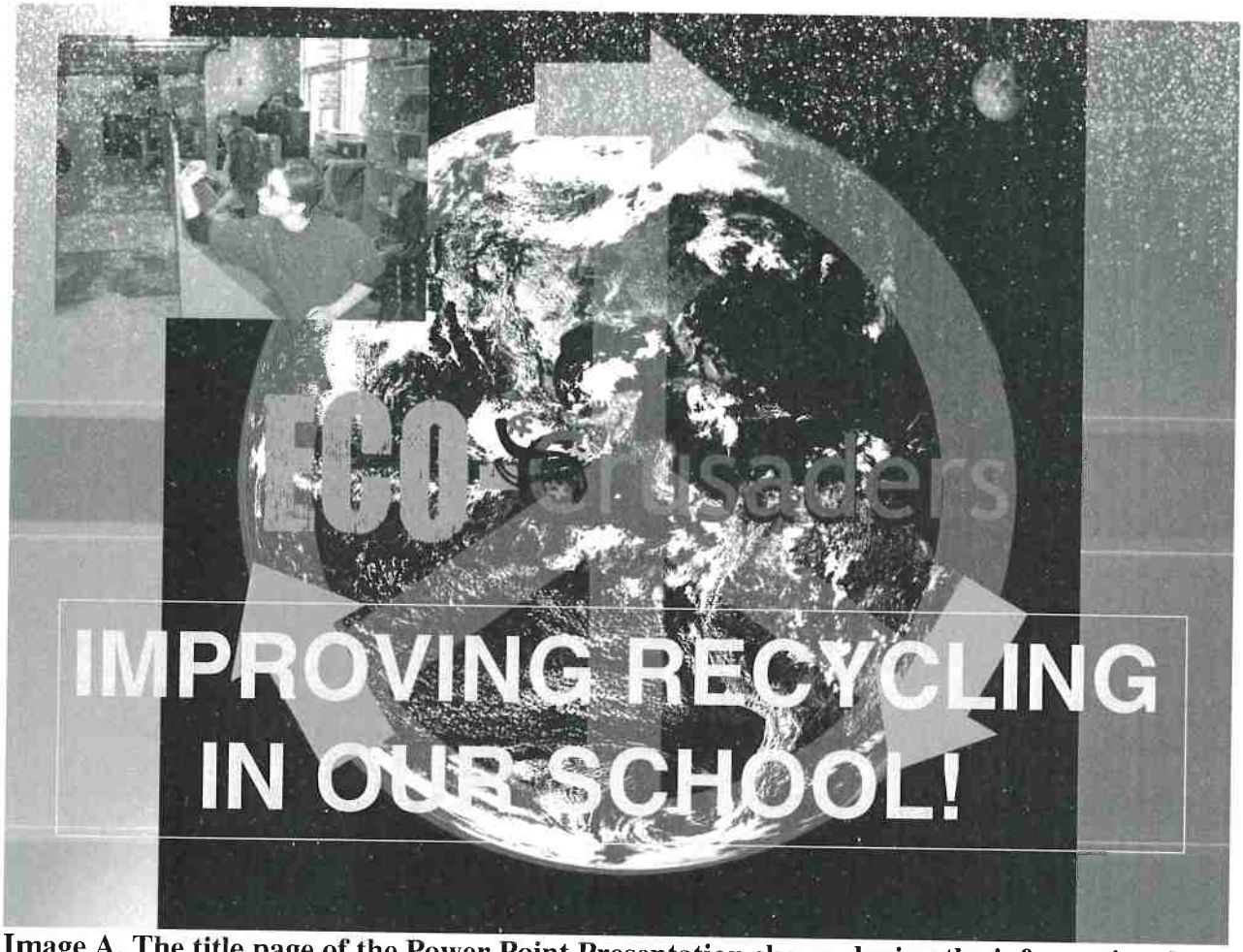


Image A. The title page of the Power Point Presentation shown during the informational presentations.

Appendix D: Continued

Examples of Student Work

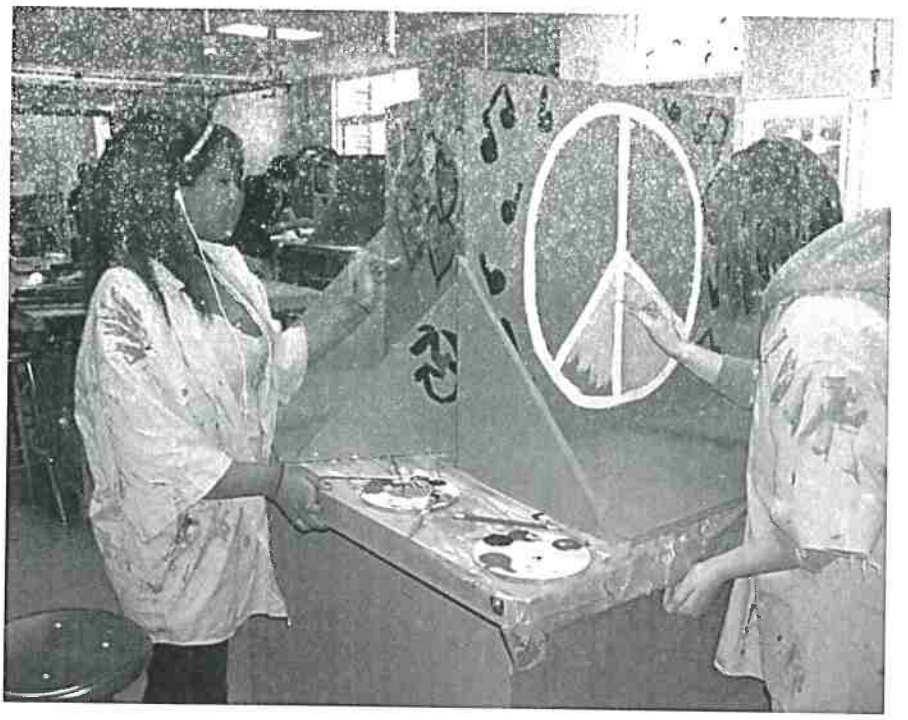
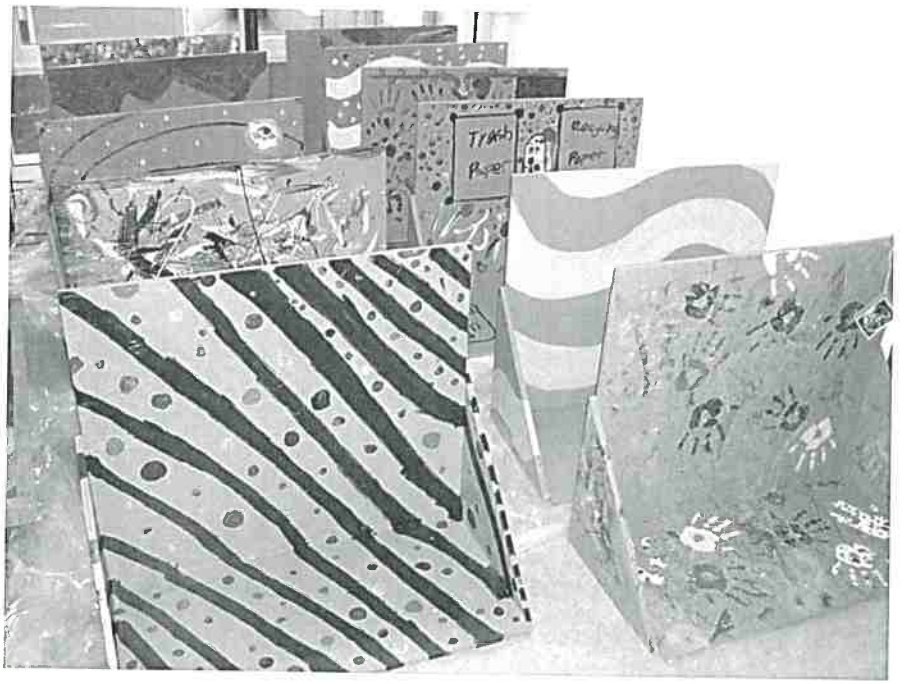


Image B. Students creating the recycling



centers.

Image C. Recycling centers before classroom delivery.

Appendix D: Continued

Examples of Student Work

Image D. Example of a recycling center in a classroom.

Image E. Example of a student campaign poster.

Appendix D: Continued

Examples of Student Work

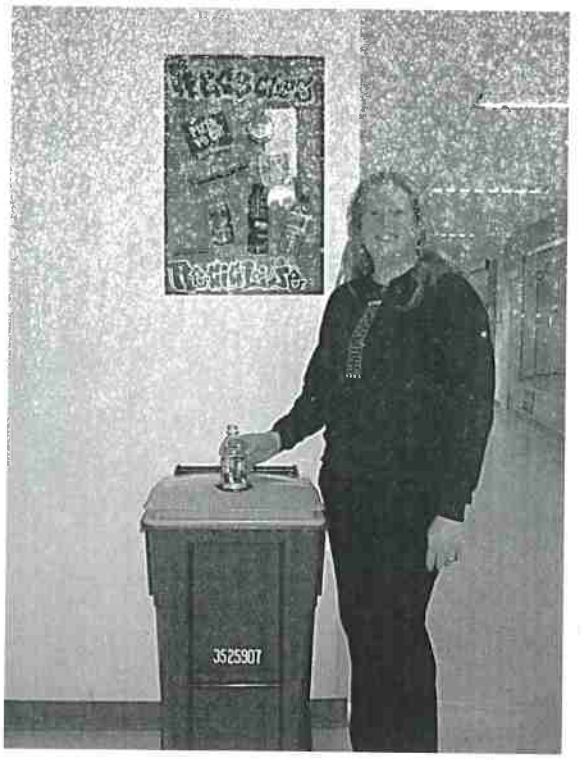


Image F. Example of cafeteria signage demonstrating which items to recycle.

Image G. Eco-Crusaders Club modeling student led recycling.

Appendix D: Continued

Examples of Student Work

Image H. Leaders of the student-led recycling pictured in front of trash/recycling center.

Appendix E

Community Service Documentation/Reflection Form (Created by Crosswinds)

Crosswinds

Community Service Documentation/Reflection

Students Name:_____

House:_____ Grade:_____

Date(s) of the Activity:_____ Number of Hours:_____

Supervising Adult Name: _____

Describe the Community Service Activity you participated in and how others benefited from it.

Where did this activity take place: _____

What did you learn about others/society from this experience?

Describe how you benefited from this service experience. How did it affect you? What did it make you think?

Student Signature: _____

Supervising Adult Signature: _____

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Appendix F

Article about the Eco-Crusaders in the School News Letter

Intersession Update

The Eco-Crusaders are pleased to provide 30 classrooms with new recycling centers! The centers were designed, built, and painted by Crosswind's students over February intersession. These recycling centers are part of a waste reduction project led by Mrs. Armstrong and the Eco-Crusaders club that meets during the regular school calendar. The goal of the project is to raise awareness of and positively change attitudes and behaviors toward recycling throughout our building. These centers are modeled after other local schools that have used student made recycling centers to make recycling more visible, educate by making signage promoting proper use of recycling bins, and give students a sense of ownership and responsibility over the recycling process. A small group of Eco-Crusaders have begun the quarter by sharing a multi-media presentation they created to include the rest of the school in the recycling improvement project. So far, the response has been very supportive. Throughout the school students can be heard echoing the Eco-Crusader message that "recycling is cool."

Wishes & Needs

ART IN THE ARBOR DONATIONS

The following houses are looking for donations to help with their Art in the Arbor activity stations. Please bring any donations to your homeroom teacher.

- Sun donation needs: plastic eggs, paper towel tubes, wrapping paper tubes
- Sol donation needs: egg cartons (clean), cake mixes (any flavor), aluminum cupcake pans, cupcake liners, white frosting
- Pangaea donation needs: newspapers

HOUSE LIBRARY

Each house has a house library. Anytime parents would like to donate books, we'll take them and/or sell them to buy books for the school.

HOST FAMILIES NEEDED

Crosswinds will again be hosting an Amity Aide from a Spanish-speaking country to assist in the foreign language classrooms. We are looking for families to host a university student for all or part of the school year. Contact Wendy Brilowski 651.379.2687 or Roger Kocinski at 651.379.2600.

INTERSESSIONS SUPPLIES

For Intersession, I am teaching a math class and each student will need a deck of cards. I would appreciate donations of decks of new cards. *Rita Simon, Teacher*

Appendix G

Pre-Course Student Survey

1. Do you believe it's important to recycle?

- ☐ Yes
- ☐ No

2. Which one of the following statements best describes your attitude about recycling and waste reduction efforts.

- ☐ I don't bother. It's not a big deal.
- ☐ If it's convenient, I will recycle.
- ☐ It's important to me.
- ☐ I'm an "eco-crusader" by nature. I go out of my way to recycle.

3. Do you recycle at home?

- ☐ Yes
- ☐ No

4. How often do you recycle in your home.

- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

5. Do you recycle at school?

- ☐ Yes
- ☐ No

6. How often do you recycle at school.

- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

7. Which materials can be recycled in the blue recycling bins at Crosswinds? Please check all that apply.

- [ ] Paper
- [ ] Glass
- [ ] Aluminum
- [ ] Plastic
- [ ] Paper only

8. Which of the following lunch items can be recycled in the blue recycling bins at Crosswinds? Please choose all that apply.

- [ ] Plastic water bottles
- [ ] Plastic yogurt containers
- [ ] Plastic bottle caps
- [ ] Milk cartons
- [ ] Aluminum cans
- [ ] Napkins
- [ ] Paper plates and cups
- [ ] I have no idea

9. Which statement below best describes how you feel Crosswinds is doing with recycling and waste reduction efforts? Please choose only one.

- [ ] Very poorly
- [ ] Could be better
- [ ] Satisfactory
- [ ] Excellent

10. Which of the following statements best describes your attitude about improving the recycling program at Crosswinds? Please choose one.

- [ ] It's not important to me. I don't care.
- [ ] I'm okay with it as long as I don't have to do anything.
- [ ] I think it's a good idea. I'd like to help.
- [ ] Finally, I've been waiting for this opportunity.

Post-Course Student Survey

1. Do you believe it's more important to recycle now that you have taken Eco-Crusaders?

- ☐ Yes
- ☐ No

2. Which one of the following statements best describes your attitude about recycling and waste reduction efforts.

- ☐ I don't bother. It's not a big deal.
- ☐ If it's convenient, I will recycle.
- ☐ It's important to me.
- ☐ I'm an "eco-crusader" by nature. I go out of my way to recycle.

3. Choose the answer that best completes the following statement: After taking Eco-Crusaders, my attitude towards waste reduction has...

- ☐ stayed the same
- ☐ become more positive
- ☐ become more negative

4. Now that you have taken Eco-Crusaders will you make an effort to recycle more at home?

- ☐ Yes
- ☐ No

5. Now that you have taken Eco-Crusaders will you make an effort to recycle more at school?

- ☐ Yes
- ☐ No

6. Will you help your teachers and peers to recycle more at school?

- ☐ Yes
- ☐ No

7. Which materials can be recycled in the blue recycling bins at Crosswinds? Please check all that apply.

- [ ] Paper
- [ ] Glass
- [ ] Aluminum
- [ ] Plastic
- [ ] Paper only

8. Which of the following lunch items can be recycled in the blue recycling bins at Crosswinds? Please choose all that apply.

- [ ] Plastic water bottles
- [ ] Plastic yogurt containers
- [ ] Plastic bottle caps
- [ ] Milk cartons
- [ ] Aluminum cans
- [ ] Napkins
- [ ] Paper plates and cups
- [ ] I have no idea

9. Which statement below best describes how you feel Crosswinds is doing with recycling and waste reduction efforts? Please choose only one.

- [ ] Very poorly
- [ ] Could be better
- [ ] Satisfactory
- [ ] Excellent

10. Which of the following statements best describes your attitude about improving the recycling program at Crosswinds? Please choose one.

- [ ] It's not important to me. I don't care.
- [ ] I'm okay with it as long as I don't have to do anything.
- [ ] I think it's a good idea. I'd like to help.
- [ ] Finally, I've been waiting for this opportunity.